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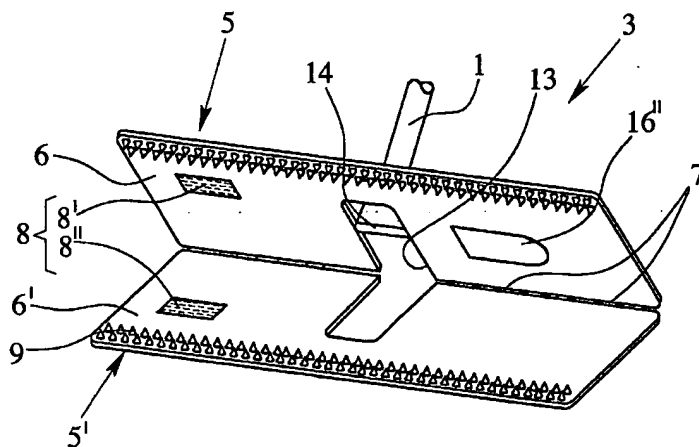
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(54) Title: MOPPING DEVICE FOR MOPPING SURFACES TO BE CLEANED, MOP HOLDER AND MOP COVER FOR A  
MOPPING DEVICE



(57) Abstract: The invention relates to a mopping device for mopping surfaces to be cleaned, comprising a handle (1) and/or a handle holder (2), a mop holder (3) attached to the handle (1) or handle holder (2) in an articulated way, and a flat mop cover (4) assigned to the mop holder (3), wherein the mop holder (3) forms two alternately usable, preferably oblong flat sides (5, 5') at least approximately opposite to each other, which, when the mop cover (4) is attached to the mop holder (3), may each be active in the cleaning process, wherein the flat sides (5, 5') are formed on wings (6, 6') that are hinge-connected to each other along a lengthwise extension of the mop holder (3), wherein a detachable connecting means (8) is provided' between the

wings (6, 6') fixedly connecting the wings (6, 6') in an operative position thereof, wherein the wings (6, 6') with the detachable connecting means detached may freely swivel to an open position in which the mop cover will freely fall or may be easily removed from the mop holder (3). This is improved in that the wings (6, 6') at their longitudinal free edges opposite to their hinge-connected longitudinal edges are provided with gripping means (9) at least on one of the wings (6, 6'), which, in the operative position of the wings (6, 6'), securely grip a longitudinal edge section (10) of the flat mop cover (4). A further improvement is realized in the detaching means (16), which operates in a way that abruptly twisting the handle (1) about its longitudinal axis detaches the connecting means (8) and frees the wings (6, 6') due to the inertia of the wings (6, 6').

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## **Mopping Device for Mopping Surfaces to be Cleaned, Mop Holder and Mop Cover for a Mopping Device**

5 The invention relates to a mopping device for mopping surfaces to be cleaned comprising the features of the introductory part of claim 1, as well as to a corresponding mop holder according to the introductory part of claim 18 as well as a mop cover according to the introductory part of claim 20.

10 Mopping devices for mopping surfaces to be cleaned are widely known and in extensive use in professional and non-professional floor cleaning. They use a mop holder with a removably attached flat mop cover from textile material made from natural or artificial fibers including and increasingly using micro-fibers. This is conventional technical knowledge and well known from the prior art (US 5,864,914 A, US 4,881,290 A).

15 Traditional mop holders for mounting a mop cover comprise an elongated frame with two wings hinge-connected together either directly or indirectly through a hinge plate, and a handle holder hinge-connected to the wings and/or the hinge plate by a swiveling means. The handle holder comprises a universal joint and forms a socket for mounting a handle (US 4,881,290 A). In this general prior art, the elongated frame is open and made from metal wire. A plate member on the upper side of each frame-like wing provides a wiping surface for cooperation with the mop cover in an operative, i.e. extended or straight position of the folding wings.

25 Detachable connecting means fixedly hold the wings in their operative, here extended position. The connecting means here have the form of rollover lips cooperating with the elastically deformable frame parts of the wings. All in all, the swiveling axes of the swiveling means here are oriented in the transversal direction of the mop holder so that insertion pockets on a corresponding mop cover are positioned on the transversal edges thereof. This is the traditional construction and orientation.

30 Another, more recently marketed mop holder (US 5,864,914 A) for mounting a mop cover comprises an elongated frame with two wings hinge-connected together indirectly through a hinge plate with swiveling axes oriented in the

longitudinal direction of the mop holder. Accordingly, the mop cover has insertion pockets provided on longitudinal edges thereof for introducing longitudinal edge sections of the wings of the mop holder. Here, there are additional detaching means for detaching the connecting means so that the wings  
5 are released into a foldaway release position. Those detaching means are provided by inclined surfaces of projections and depressions interacting in such a way that manual pressure on the detaching means releases the wings.

10 In this prior art, the detachable connecting means are described as catch, clamping, Velcro (burr), or magnet means.

In another prior art that is admitted here as being relevant and well-known from practical products, a mop holder has a rigid mounting plate with a universal joint on top and an active cleaning surface at the bottom. A lengthwise extending undercut groove is positioned at the longitudinal edge of the mounting plate. An  
15 associated mop cover has at one lengthwise extending edge, an enlarged rib of plastic material extending lengthwise and fitting into the groove on the mop holder. Insertion of the rib into the groove is carried out in a sliding movement in the lengthwise direction. One side of the mop cover may be used separately from  
20 the mop holder whereas the other side of the mop cover may be used traditionally below the mop holder to clean a surface.

Mop covers as such are widely known for use in a mopping device. Not only the above-mentioned prior art (US 5,864,914 A) discloses such mop covers, but also  
25 a large number of other publications (DE 94 15 071 U1, DE 94 02 509 U1, DE 295 20 193 U1). It is already known to have a flat mop cover with a lengthwise extending separation line separating material sections of the mop cover with different properties, which can be optionally brought into contact with the surface to be cleaned. So, it is possible that the floor can be first scoured or  
30 scrubbed using a relatively rough material and then cleaned or dried using a relatively soft material, all with the same mop cover. The separation line is optionally of liquid impermeable material like a plastic strip (DE 94 15 071 U1).

With the exception of one example presented by the above-admitted prior art, the  
35 mop covers of all known mopping devices need insertion pockets or holding strips (US 5,864,914 A, US 4,881,290 A, DE 94 02 509 U1, DE 295 20 193 U1)

or are as such formed in a three-dimensional way as a pocket-like construction (DE 94 15 071 U1). This means that the mop cover, which has to be washed frequently, suffers from varying shrinkage of the textile material used in the different layers or sections and carries textile material that is not used for cleaning. This brings about additional washing time and expense.

The object of the present invention is to provide a mopping device, mop holder and mop cover, which allow efficient two-step mopping with both sides of the mop cover available for cleaning purposes, with long-lasting and efficient mop covers and a touch-free removal and re-attachment of the mop cover to the mop holder.

Above-mentioned object of the present invention is met with a mopping device comprising the features of the introductory part of claim 1 and in addition the features of the characterizing part of claim 1, a corresponding mop holder according to claim 18 and a corresponding mop cover according to claim 20.

Preferred embodiments of the invention are described in the sub-claims.

The invention allows for two-step mopping, which means the use of both sides of the mop cover during the cleaning process. The mop cover may consist of two layers, which can be separated from each other even with a kind of separation layer, preferably a liquid impermeable separation layer. Anyway, practically all of the textile material of the mop cover is used for cleaning; in particular both sides of the mop cover are used for cleaning. They can be equipped differently, one side for scrubbing, the other side for cleaning, or one side for wet cleaning of the surface and the other side for drying the surface after wet cleaning.

Uneven shrinkage of the textile material of the mop is unlikely, because no insertion pockets or holding strips are necessary. The complete mop cover is attached to the mop holder just by means of lengthwise gripping of one edge of the mop cover by the mop holder. No further attachment means at the mop cover are necessary.

In contrast to the admitted prior art, a completely touch-free use is possible, because no complicated lengthwise insertion of an extended holding rib into a

lengthwise extending groove on the mop holder is necessary. Instead, the construction is such that the mop holder forms a pair of tongues with its wings that grip the lengthwise extending edge section of the mop cover safely.

- 5 Removal of the mop cover from the mop holder is easy by just detaching the wings so that the mop cover will freely from the mop holder or can at least easily be removed from the mop holder by shaking the mop holder.

10 Now, further features, advantages, applications of the invention can be obtained from the following detailed description of preferred embodiments of the invention taken in conjunction with the accompanying drawings. In the drawings

- Fig. 1 is a perspective view of a first embodiment of a mop holder for a mopping device with the wings in the operative position,
- 15 Fig. 2 is a perspective view of the mop holder of Fig. 1, the wings opened as for release or mounting of a mop cover,
- Fig. 3 is a perspective view of a first embodiment of a mop cover for a mopping device according to the invention,
- 20 Fig. 4 is a perspective view of a second embodiment of a mop holder for a mopping device according to the invention, the schematic view similar to the embodiment in Fig. 2,
- 25 Fig. 5 is a cross-section through a mop cover according to a preferred embodiment of the invention.

30 For explanation of a first and instructive embodiment of the invention, please refer to Fig. 1, 2, and 3, together.

Fig. 1 to 3, together, show a mopping device for mopping surfaces to be cleaned. This mopping device comprises a handle 1 and, in this preferred embodiment, a handle holder 2. The handle holder 2 is formed as a socket removably holding  
35 the handle 1 that is the necessary means to operate the mopping device.

A mop holder 3 is attached to the handle holder 2 in an articulated way. Here, with the handle holder 2 and the handle 1, the mop holder 3 is attached to the handle holder 2. If only the handle 1 is present, then the mop holder 3 is directly attached to the handle 1.

5

As can be seen in Fig. 3, a flat mop cover 4 is assigned to the mop holder 3. However, both parts are normally sold separately from each other. The mop holder 3 is a long-lasting product, whereas the mop cover 4 is subject to wear and tear and will be replaced from time to time.

10

The mop holder 3 forms two alternately useable, preferably oblong flat sides 5, 5' at least approximately opposite to each other (in the operative position of the mop holder 3). In Fig. 1, the one flat side 5 is the upper side, whereas the other flat side 5' is the lower, in Fig. 1 concealed side of the mop holder 3. However, the mop holder 3 can be turned upside down for use of the second side.

15

When the mop cover 4 is attached to the mop holder 3, each side 5, 5' may be active in the cleaning process.

20

Now, as can be seen from a comparison of Fig. 1 and Fig. 2, the flat sides 5, 5' are formed on wings 6, 6' that are hinge-connected at a hinge connection 7 to each other along a lengthwise extension of the mop holder 3. A detachable connecting means 8 is provided between the wings 6, 6' fixedly connecting the wings 6, 6' in an operative position thereof (Fig. 1). The wings 6, 6' with the detachable connecting means 8 detached (Fig. 2) may freely swivel to an open position in which the mop cover 4 freely falls or may be easily removed from the mop holder 3.

25

Now, as will be available from Fig. 2 as well as, in the second embodiment, Fig. 4, the wings 6, 6' at their longitudinal free edges opposite to their hinge-connected longitudinal edges are provided with gripping means 9 at least on one of the wings 6, 6', which in the operative position of the wings 6, 6' securely grip a longitudinal edge section 10 of the mop cover 4. A comparison of Fig. 2 and Fig. 3 reveals that here, the gripping means 9 are on both wings 6, 6' more or less symmetrical, however, those gripping means 9 are necessarily present on only one of the wings 6, 6'.

30

35

The edge section 10 cooperating with the gripping means 9 may be provided on both sides of the mop cover 4. In the embodiment of Fig. 3, however, only one lengthwise extending edge section 10 is present.

5

It is convenient that the mop cover 4 needs no further attachment means. However, if a multi-use mop cover 4 is present, there may be other attachment means for different mop holders.

10 In general, it is possible that the gripping means 9 are at least one of lengthwise extending ribs, grooves, rows of gripping teeth or pins, undercut sections, roughened surface sections, and adhesive surface sections. In the present embodiment of Fig. 1 to 3, here the gripping means 9 on both wings 6, 6' are rows of gripping teeth.

15

In the present embodiment and according to a preferential version of the invention, it is provided that at least one longitudinal edge section 10 of the mop cover 4 is provided with a gripping counter-formation 11 in order to improve the efficiency of the gripping means 9 of the mop holder 3. It may be that the  
20 gripping counter-formation 11 is at least one of lengthwise extending form strip, double-layer trim edge, attached plastic strip with ribs, grooves, rows of gripping teeth or pins, undercut sections, roughened surface sections, and adhesive surface sections, or roughened surface edge section or adhesive surface edge section of the mop cover 4.

25

Fig. 3 shows an attached plastic strip with ribs as gripping counter-formation 11 for cooperation with the rows of gripping teeth as gripping means 9 on the wings 6, 6'. The embodiment of Fig. 4 instead shows just undercut sections as gripping means 9 on the wings 6, 6', which may correspond with a comparably simple  
30 gripping counter-formation 11 on a corresponding mop cover 4.

However, in particular, gripping means 9 as rows of gripping teeth as in Fig. 2 may well cooperate with just the textile material of the mop cover 4 in a lengthwise extending section thereof as such. A double layer trim edge may then  
35 further improve the fit.

Fig. 1 reveals that this mop holder 3 is a specifically designed mop holder with an additional feature. It is provided that the wings 6, 6' of the mop holder 3 along or near the hinge-connected longitudinal edges are provided with additional fixing means 12 for the free longitudinal edge section of the mop cover 4. Here,  
5 the additional fixing means 12 have the form of a row of gripping teeth. They may have the form of the gripping means 9 as well.

The embodiment of Fig. 1, 2 as well as the embodiment of Fig. 4 reveals a mop holder 3, where most parts of the mop holder 3 are made from plastics. Both  
10 wings 6, 6' are plastic plates.

For a plastic system, it is particularly helpful to provide the hinge connection 7 by means of a living hinge of plastics. In Fig. 2, the living hinge of plastics is provided by four living hinge sections between the wings 6, 6'.  
15

Instead, the hinge connection 7 may be provided directly between the wings 6, 6' by means of a swivel pin or swiveling pins running in corresponding bearings. Reference is made to the constructions revealed in the prior art documents US 5,864,914 A and US 4,881,290 A.  
20

In both embodiments of Fig. 1 to 3 on the one hand and Fig. 4 on the other hand, a specific design of the mop holder 3 is provided in that the articulated connection between the handle 1 or handle holder 2 and the mop holder 3 is positioned more or less in the middle of the wings 6, 6' with access openings 13  
25 extending in the wings 6, 6' from the longitudinal free edges. This allows easy turning of the mop holder 3 upside down as already explained above.

Further, here it is provided that the articulated connection comprises at least one swiveling pin 14 oriented along the lengthwise extension of the mop holder 3, when the wings 6, 6' are in their operative position, and corresponding bearings  
30 15 at the wings 6, 6'. This is a particularly simple and easy construction. However, a universal joint or cardan joint or at least a further swivel joint with a transversely oriented axis may be incorporated into the handle holder 2 for even more universal movability of the mop holder 3.

35

Fig. 1 and 2 further disclose details about the detachable connecting means 8. In general it is advisable that the detachable connecting means 8 comprises at least one mechanical snap-in device or, preferably, a magnetic device with at least one magnet part 8' and at least one metallic counter-part 8", as disclosed in Fig. 2.

5

Further, Fig. 1 and 2 disclose a detaching means 16. The detaching means 16 is a traditional mechanical detaching means (e.g. US 5,864,914 A; DE 37 14 178 C2). A step-on plate 16' on one flat side 5 of the mop holder 3 actuates a detaching element 16" below the wing 6, which mechanically separates the wings 6, 6' for a distance that is sufficient to overcome the effect of the magnet part 8'. Fig. 2 shows the release position of the wings 6, 6'.

10

Fig. 4 shows a slightly different embodiment of the invention with detaching means positioned operatively between the wings 6, 6' and interacting with the wings 6, 6' and the detachable connecting means 8 in a way that abruptly twisting the handle 1 about its longitudinal axis detaches the detachable connecting means 8 due to the inertia of the wings 6, 6'. In the specific embodiment of Fig. 4, the detaching means comprises at least one detaching element extending between correspondingly operative parts of the wings 6, 6'. In particular, here, the detaching element is identical with the swiveling pin 14. The swiveling pin 14 is carried in bearings 15 only when the wings 6, 6' are in their operative position fixedly connected to each other. Then, the bearings 15 are closed and allow usual swiveling of the handle 1 relative to the mop holder 3 by means of the swiveling pin 14. When the wings 6, 6' are separated, the swiveling pin 14 is free from the bearings 15, although the mop holder 3 cannot fall off the handle 1 or handle holder 2, respectively, as can be obtained from Fig. 4 of the drawings.

15

20

25

If in the operative position of the wings 6, 6' abruptly twisting of the handle 1 about its longitudinal axis takes place, the swiveling pin 14 acts as detaching element separating both wings 6, 6' from each other.

30

In general mop holders 3 and mop covers 4 for professional floor cleaning have a length of approximately 20 cm to approximately 100 cm, preferably of approximately 40 cm to approximately 60 cm.

35

The shape of the mop holder 3 in Fig. 4 is trapezoidal as in the prior art document DE 94 02 509 U1. This shape improves the cleaning operation in corners.

5 Fig. 3 of the drawings shows a preferred embodiment of the mop cover 4 to be used with the mop holder 3 of the invention. A sectional view of Fig. 3 can be seen in Fig. 5.

10 The mop cover 4 here has two active layers 4', 4". In the present embodiment, the layers 4', 4" have different properties. Basically, this is well known from the prior art (US 5,864,914 A). However, here, the two layers 4', 4" are not connected to each other laterally, but are connected to each other at the outer rim and so cover the same area. Those two layers 4', 4" of preferably different properties form two alternatively usable cleaning surfaces of the mop cover 4. In  
15 the present embodiment, as can be seen from Fig. 5, the mop cover 4 is provided with a liquid impermeable separation layer 4''' between the two active layers 4', 4". In general, this is similar to DE 295 20 193 U1 from the standpoint of a basic construction of the mop cover 4. However, here, the mop cover 4 has no insertion pockets and the separation layer 4''' is liquid impermeable. This is an  
20 essential advantage for two-step mopping with a wet side and a dry side.

It is still possible to use a lateral separation of different layers, or to combine both aspects in a mop cover 4.

25 A particular advantage of the mopping device according to the invention with the mop cover 4 of the above-described specific design, is that the mop cover 4 may be pressed without interference of any parts of the mop holder 3 even if still gripped by the gripping means of the wings 6, 6'. Pressing of the mop cover 4 is highly efficient and removes most of the liquid from the mop cover 4 with this  
30 system, however, without the need for touching the mop cover 4 at all.

The subject matter of the invention is also a mop holder as such as well as a mop cover as such usable in connection with a mopping device according to the invention.

**Claims:**

1. Mopping device for mopping surfaces to be cleaned, comprising  
a handle (1) and/or a handle holder (2),  
5 a mop holder (3) attached to the handle (1) or handle holder (2) in an articulated  
way, and  
a flat mop cover (4) assigned to the mop holder (3),  
wherein the mop holder (3) forms two alternately usable, preferably oblong flat  
sides (5, 5') at least approximately opposite to each other, which, when the mop  
10 cover (4) is attached to the mop holder (3), may each be active in the cleaning  
process,  
wherein the flat sides (5, 5') are formed on wings (6, 6') that are hinge-connected  
to each other along a lengthwise extension of the mop holder (3),  
wherein a detachable connecting means (8) is provided between the wings (6, 6')  
15 fixedly connecting the wings (6, 6') in an operative position thereof,  
wherein the wings (6, 6') with the detachable connecting means detached may  
freely swivel to an open position in which the mop cover will freely fall or may  
be easily removed from the mop holder (3),  
**characterized in that**  
20 the wings (6, 6') at their longitudinal free edges opposite to their hinge-connected  
longitudinal edges are provided with gripping means (9) at least on one of the  
wings (6, 6'), which, in the operative position of the wings (6, 6'), securely grip a  
longitudinal edge section (10) of the flat mop cover (4).
- 25 2. Mopping device according to claim 1, characterized in that  
the gripping means (9) are at least one of lengthwise extending ribs, grooves,  
rows of gripping teeth or pins, undercut sections, roughened surface sections, and  
adhesive surface sections.
- 30 3. Mopping device according to any one of the preceding claims, characterized in  
that  
at least one longitudinal edge section (10) of the mop cover (4) is provided with  
a gripping counter-formation (11) in order to improve the efficiency of the  
gripping means (9) of the mop holder (3).
- 35 4. Mopping device according to claim 3, characterized in that

the gripping counter-formation (11) is at least one of lengthwise extending form strip, double-layer trim edge, attached plastic strip with ribs, grooves, rows of gripping teeth or pins, undercut sections, roughened surface sections, and adhesive surface sections, or roughened surface edge section or adhesive surface edge section of the mop cover (4).  
5

5. Mopping device according to any one of the preceding claims, characterized in that  
the wings (6, 6') of the mop holder (3) along or near the hinge-connected  
10 longitudinal edges are provided with additional fixing means (12) for the free longitudinal edge section of the mop cover (4).

6. Mopping device according to any one of the preceding claims, characterized in that  
15 the hinge connection (7) is provided, preferably directly between the wings (6, 6'), by means of a swivel pin or of swiveling pins in corresponding bearings.

7. Mopping device according to any one of claims 1 to 5, characterized in that the hinged connection (7) is provided, preferably directly between the wings (6, 6'), by means of a living hinge of plastics.  
20

8. Mopping device according to any one of the preceding claims, characterized in that  
all or most parts of the mop holder (3) are made from plastics.  
25

9. Mopping device according to any one of the preceding claims, characterized in that  
the articulated connection between the handle (1) or handle holder (2) and the mop holder (3) is positioned more or less in the middle of the wings (6, 6') with  
30 access openings (13) extending in the wings (6, 6') from the longitudinal free edges thereof towards the middle thereof.

10. Mopping device according to any one of the preceding claims, characterized in that

the articulated connection comprises at least one swiveling pin (14) oriented along the lengthwise extension of the mop holder (3), when the wings (6, 6') are in their operative position, and corresponding bearings (15) at the wings (6, 6').

5 11. Mopping device according to any one of the preceding claims, characterized in that

the detachable connecting means (8) comprises at least one mechanical snap-in device or, preferably, a magnetic device with at least one magnet part (8') and at least one metallic counterpart (8").

10

12. Mopping device according to claim 11, characterized in that a detaching means (16) is positioned operative between the wings (6, 6') and the detaching means (16) interacts with the wings (6, 6') to detach the detachable connecting means (8) and separate the wings (6, 6') upon mechanical actuation of the detaching means (16).

15

13. Mopping device according to any one of claims 1 to 10, characterized in that a detaching means (16) is positioned operatively between the wings (6, 6') and the detaching means (16) interacts with the wings (6, 6') and/or the detachable connecting means (8) in a way that abruptly twisting the handle (1) about its longitudinal axis detaches the connecting means (8) and frees the wings (6, 6') due to the inertia of the wings (6, 6').

20

14. Mopping device according to claims 10 and 13, characterized in that the detaching means (16) is provided by the swiveling pin (14) of the articulated connection.

25

15. Mopping device according to any one of the preceding claims, characterized in that

the mop cover (4) has two active layers (4', 4'') of preferably different properties forming two alternately usable cleaning surfaces.

30

16. Mopping device according to claim 15, characterized in that the mop cover (4) is provided with a liquid impermeably separation layer (4''') between the two active layers (4', 4'').

35

17. Mopping device according to any one of the preceding claims, characterized  
in that  
the mop holder (3) and/or the mop cover (4) has a length of approximately 20 cm  
to approximately 100 cm, preferably of approximately 40 cm to approximately  
5 60 cm.

18. Mop holder for a mopping device according to any one of claims 1 to 17,  
wherein the mop holder (3) forms two alternately usably, preferably oblong flat  
sides (5, 5') at least approximately opposite to each other,  
10 wherein the flat sides (5, 5') are formed on wings (6, 6') that are hinge-connected  
to each other along a lengthwise extension of the mop holder (3),  
wherein a detachable connecting means (8) is provided between the wings (6, 6')  
fixedly connecting the wings (6, 6') in an operative position thereof,  
wherein the wings (6, 6') with the detachable connecting means detached may  
15 freely swivel to an open position,  
**characterized in that**  
the wings (6, 6') at their longitudinal free edges opposite to their hinge-connected  
longitudinal edges are provided with gripping means (9), which, in the operative  
position of the wings (6, 6'), are able to securely grip a longitudinal edge section  
20 of a flat mop cover (4).

19. Mop holder according to claim 18, characterized by the features of the  
characterizing part or parts of at least one of claims 2, 5 to 14, 17.

20. Flat mop cover for a mopping device according to any one of claims 1 to 17,  
25 **characterized by**  
the features of the characterizing part of at least one of claims 3, 4, 15, 16.

1/3

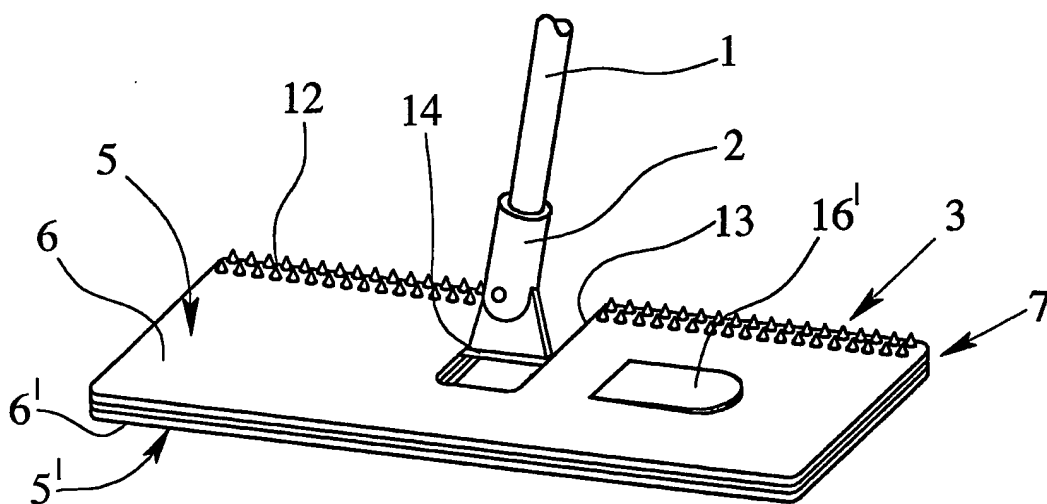


Fig. 1

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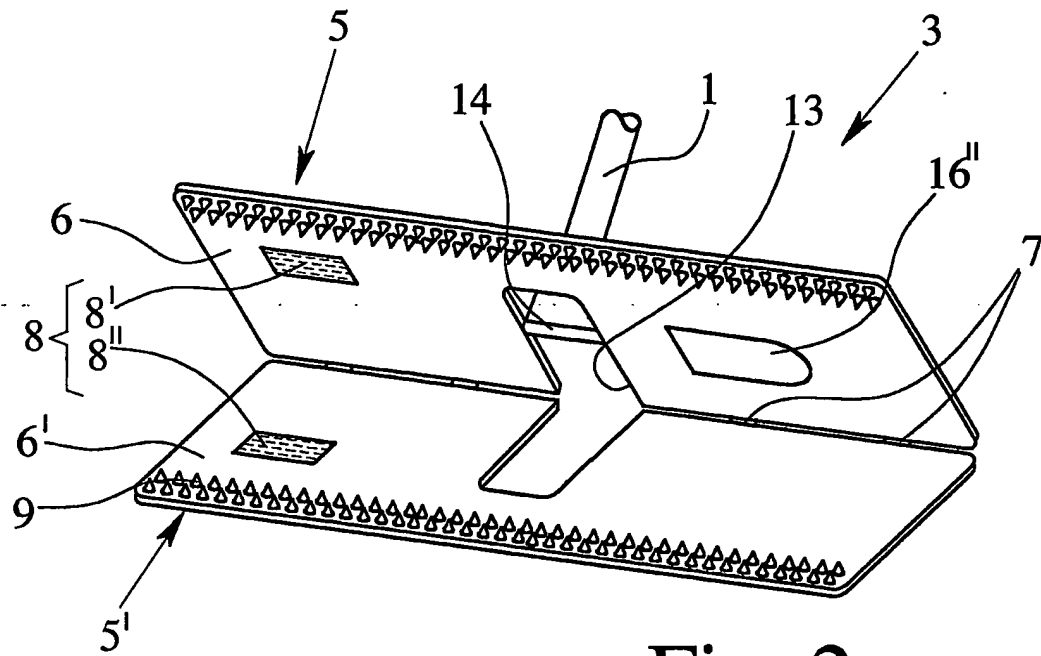


Fig. 2

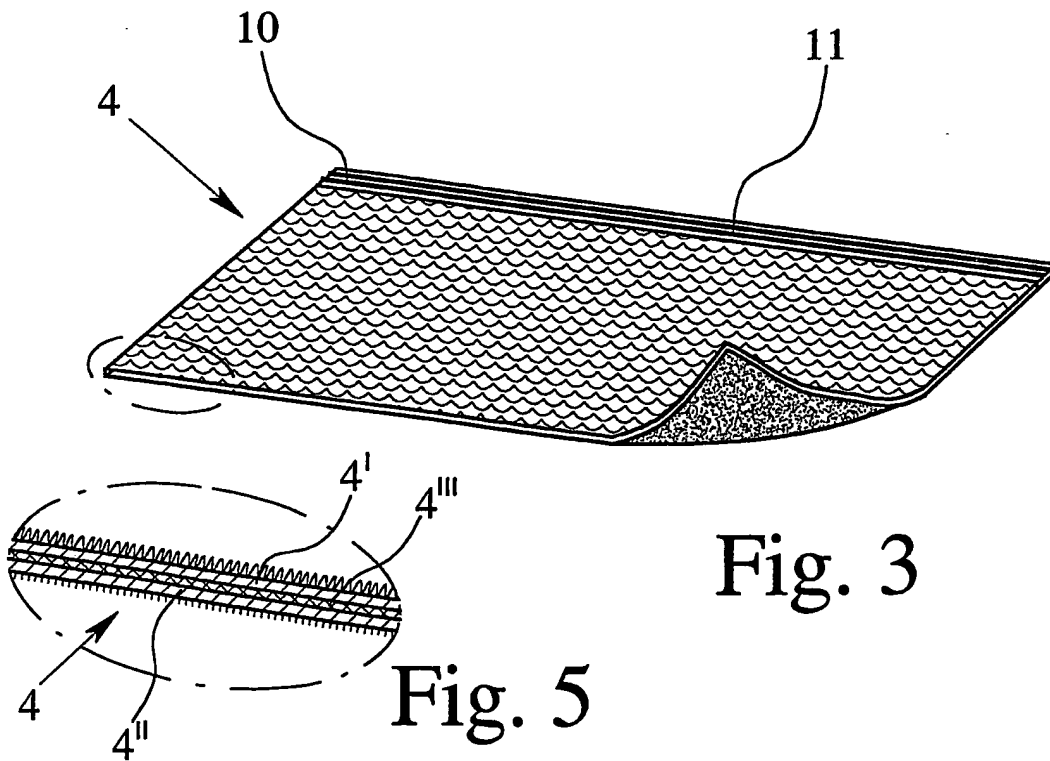


Fig. 3

Fig. 5

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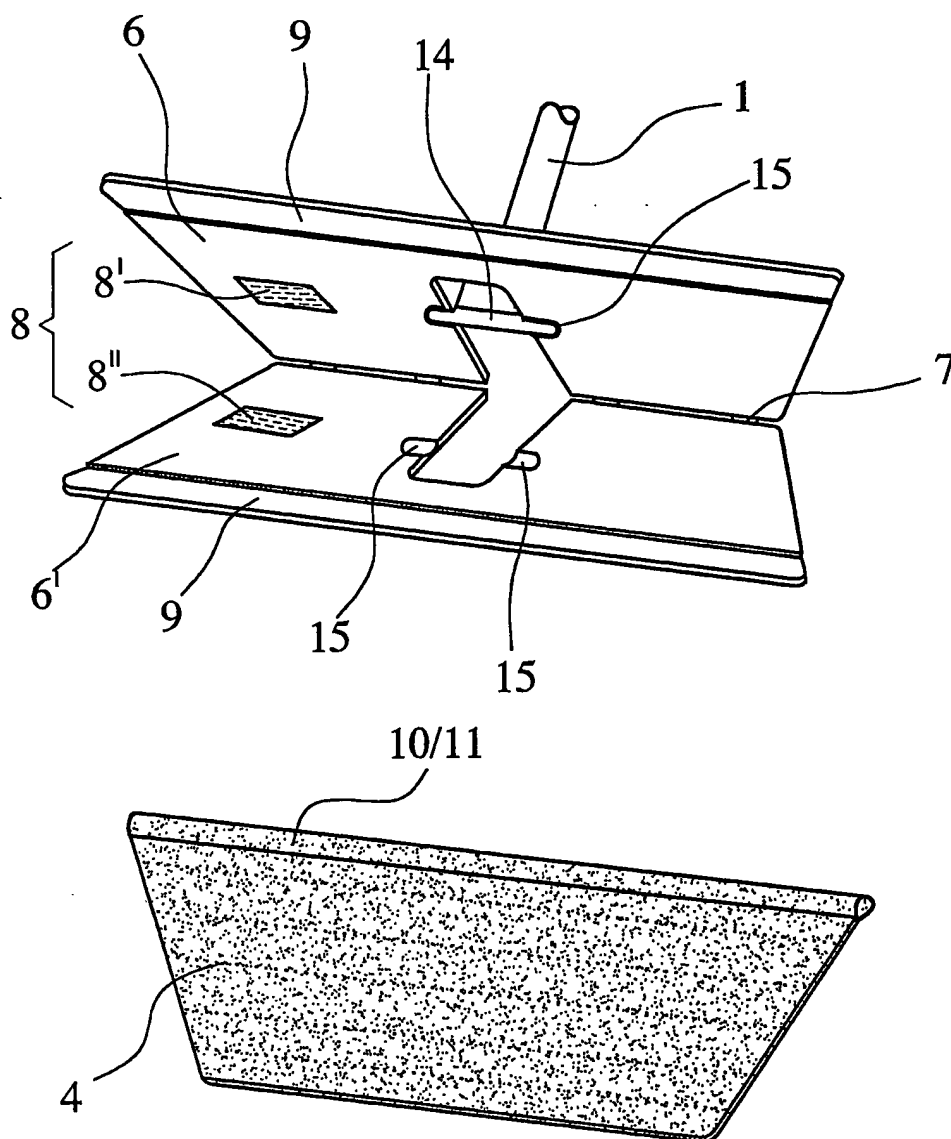


Fig. 4

# INTERNATIONAL SEARCH REPORT

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47L13/258 A47L13/20 A47L13/46 A47L13/256

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 5 461 749 A (AHLBERG, C. S. ET AL) 31 October 1995 (1995-10-31)</p> <p>abstract column 4, line 8 - line 26 column 4, line 61 - line 65 column 5, line 21 - column 6, line 28 column 6, line 43 - line 54 column 6, line 66 - column 7, line 45 column 8, line 66 - column 9, line 50 column 9, line 61 - column 10, line 2 figures 3-5,7-11</p> <p style="text-align: center;">----- -/-</p>	<p>1-6, 8-13, 17-20</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

25 February 2005

Date of mailing of the international search report

04/03/2005

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/007009

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 342 445 A (VERMOP SALMON GMBH) 10 September 2003 (2003-09-10)  abstract column 4, line 37 - column 5, line 4 column 5, line 33 - column 6, line 51 claims 10,12,19-21 figures 1-4	1-3,6,8, 9,15, 17-20
Y		16,20
Y	EP 0 685 197 A (LEIFHEIT AKTIENGESELLSCHAFT) 6 December 1995 (1995-12-06) column 2, line 10 - line 39 claims 3-6	16,20
A	US 5 864 914 A (SALMON, D.) 2 February 1999 (1999-02-02) cited in the application abstract column 4, line 16 - line 39 column 4, line 55 - column 5, line 5 figures 1-3d,9,10	1,18,20
A	DE 94 15 071 U1 (VILEDA GMBH) 3 November 1994 (1994-11-03) cited in the application page 2, line 31 - page 4, line 8 figures	1,16,18, 20
A	DE 196 31 617 A1 (VERMOP SALMON GMBH) 13 February 1997 (1997-02-13) abstract figures	1,18,20
A	EP 0 808 601 A (VERMOP SALMON GMBH) 26 November 1997 (1997-11-26) abstract column 10, line 16 - column 12, line 23 figures 1-5	1,18,20
A	WO 03/039321 A (UNI-CHARM CORPORATION ET AL) 15 May 2003 (2003-05-15) abstract figures	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/007009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5461749	A	31-10-1995	AU 2469095 A BR 9507798 A CA 2189433 A1 CN 1149245 A EP 0762845 A1 JP 10500881 T WO 9532661 A1	21-12-1995 05-08-1997 07-12-1995 07-05-1997 19-03-1997 27-01-1998 07-12-1995
EP 1342445	A	10-09-2003	DE 10209613 A1 EP 1342445 A2 PL 358975 A1	18-09-2003 10-09-2003 08-09-2003
EP 0685197	A	06-12-1995	EP 0685197 A1	06-12-1995
US 5864914	A	02-02-1999	DE 29512724 U1 AT 185260 T DE 19631617 A1 DE 59603271 D1 DK 757903 T3 EP 0757903 A2 ES 2137597 T3 GR 3031944 T3	19-10-1995 15-10-1999 13-02-1997 11-11-1999 03-04-2000 12-02-1997 16-12-1999 31-03-2000
DE 9415071	U1	03-11-1994	NONE	
DE 19631617	A1	13-02-1997	DE 29512724 U1 AT 185260 T DE 59603271 D1 DK 757903 T3 EP 0757903 A2 ES 2137597 T3 GR 3031944 T3 US 5864914 A	19-10-1995 15-10-1999 11-11-1999 03-04-2000 12-02-1997 16-12-1999 31-03-2000 02-02-1999
EP 0808601	A	26-11-1997	DE 19620633 A1 EP 0808601 A2 PL 320127 A1	27-11-1997 26-11-1997 24-11-1997
WO 03039321	A	15-05-2003	JP 2003265392 A WO 03039321 A1	24-09-2003 15-05-2003